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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/675,634

09/30/2003

Gunter Schmid

8074-23 (S2724 SB/swi)

6065

7590

03/23/2005

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EXAMINER

PHAM, THANH V

ART UNIT

PAPER NUMBER

2823

DATE MAILED: 03/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/675,634	Applicant(s) SCHMID, GUNTER	
	Examiner Thanh V. Pham	Art Unit 2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>09/30/03</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5, 10-11, 16, 19 and 22-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Toyonaga et al. US 4,859,496.

The Toyonaga et al. reference discloses:

Re claim 1, a method for patterned metallization of a surface of a substrate, comprising the steps of:

preheating the substrate to a temperature which is below a deposition temperature of a predetermined metal dissolved in a fluid provide above the surface of the substrate, col. 6, lines 50-52; and

performing patterned deposition of the predetermined metal in predetermined regions on the surface of the substrate by locally increasing the temperature at the surface of the substrate to above the deposition temperature, col. 7, lines 47-48.

Re claims 2-4, the temperature at the surface of the substrate is locally increased to above the deposition temperature (col. 3, line 67 – col. 4, line 2) by selective provision of photons in the predetermined regions (col. 2, line 5) wherein the photons are generated by a laser device (1 of fig. 2 and 14a of fig. 7) wherein the laser device

1/14a guides a laser beam 14b selectively over a surface of the predetermined regions H on the substrate 20 (col. 7, line 24).

Re claims 5 and 10, following the photon-based deposition of a starting metallization on the predetermined regions on the substrate, the temperature of the substrate is increased until the deposition of the predetermined metal takes place autocatalytically up to a predetermined metallization thickness, fig. 10 and the related description, col. 3, line 36 – col. 4, line 8 and col. 8, lines 20-29.

Re claims 11-13 and 21, wherein the predetermined metal is fed to the substrate by a liquid solution of an organometal compound, col. 2, lines 62-66 and wherein the organometal compound is dissolved in an aprotic solvent including one of CO₂, a hydrocarbon, a paraffin, an aromatic and an ether, col. 8, line 65 – col. 9, line 42.

Re claim 16, the method is performed in a process chamber *inherently* having a covering device, col. 7, lines 4-8.

Re claim 19, the substrate is position on a holder 8 and the temperature of the holder is capable of being controlled *by element 15 of figs. 1 and 7*, col. 6, line 21-23.

Re claim 20, the method further comprising controlling the temperature of supplied process chemicals, col. 8, line 68 – col. 9, line 1

Re claims 22-23, the patterned metallization forms a rewiring device on the surface of the substrate wherein the substrate is a passivated semiconductor substrate, col. 1, lines 56-64 (“providing a method of producing ... a desired pattern without applying the etching process” implies “the patterned metallization forms a rewiring device” as claimed).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6-9, 14-15 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toyonaga et al. as applied to claims 1-5, 10-13, 16, 19-23 above, and further in view of Koide US Pub. 2001/0023052 A1 and Engelking US 4,385,388.

The Toyonaga et al. reference discloses substantially all of the invention but lacks using a device for generating light pulses with a mask having a reflective surface of chromium on a substrate of SiO₂ or SiN or polyimide and polybenzoxazoles within a process chamber having quartz glass cover which is transparent to photons, although the reference teaches "heat source is not limited to a laser beam but variant ones in the form of a beam", e.g. infrared light beam or ultra violet, "to accomplish film deposition through photo-decomposition to reactive gas" (col. 9, line 43 – col. 10, line 15) on glass substrate of various display devices and solar cells (col. 1, line 11), borosilicate glass or different materials of substrate (col. 4, lines 56-60).

Re claims 6-9, the Koide reference teaches

[0005] Conventionally, the mask used for projecting a light pattern onto an object to be exposed has been composed of a metal plate in which a pattern is formed by electroforming or a glass plate such as of quartz on which a metal film such as of chromium is patterned.

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the method of Toyonaga et al. with a mask of Koide as the mask would be selected in accordance with the method of forming patterned metallization as taught by Toyonaga et al. The use of a mask with patterned metal film of chromium is well known to those skilled in the art as taught by Koide.

Re claims 14-15, the Koide reference teaches

[0032] the working is easily possible even in the work material of a high thermal conductivity such as metals, ceramics or minerals (such as silicon) ... Also in material with low optical absorbance such as quartz or glass ...

it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the method of Toyonaga et al. with different substrate materials of Koide as the appropriate substrate would be selected in accordance with the method of forming patterned metallization as taught by Toyonaga et al. The use of different substrate materials is well known to those skilled in the art as taught by Koide.

Re claims 17-18, the combination does not disclose that the method is performed in a process chamber with a covering device of quartz glass which transparent to photons. The Engelking reference discloses a glass shell 12 with quartz glass window 16 and removable cap 14 "usable for a referencing laser beam wavelength in both visible and ultraviolet light range", col. 1, lines 43-44.

To employ the chamber as taught by Engelking for the method of the combination would have been obvious to one of ordinary skill in the light referencing art as the chamber would be selected in accordance with the laser/light method as taught

by the combination because such a chamber of Engelking would provide the method of the combination with a closed chamber with means for light beam going through to the applied substrate.

Conclusion


5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh V. Pham whose telephone number is 571-272-1866. The examiner can normally be reached on M-T (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TP
TvP
03/07/2005


George Fourson
Primary Examiner